Information Builders

Technical Memo

FOCUS Version 7.2   TM7989
December 12, 2001

Data Adapter Tracing

Data adapter trace facilities have been updated for FOCUS 7.2. Each trace is associated with a trace level and a default ddname. Using a SET command, you must turn on each trace level you want to generate prior to issuing the request to be traced. You also specify which components (data adapters) you want to include in the trace.

Activating Traces

You activate the tracing facility by issuing the following commands at the command level, in a FOCEXEC, or in any supported profile:

`SET TRACEUSER=ON`

Then activate specific traces prior to running the request for which you want the trace generated:

`SET TRACEON = component [/ [level] [/ [destination] ] ]`

where:

component

Is the trace to activate. See *Trace Components and Levels* for the components and levels available.

level

If a component is associated with multiple levels, identifies the trace level to activate. See *Trace Components and Levels* for available components and levels.

destination

Can be one of the following:

FSTRACE returns the trace output to the destination indicated in the allocation for ddname FSTRACE. You must explicitly allocate this ddname.

CLIENT displays the trace output on the screen of an online session. No explicit allocation is necessary.

Deactivating Traces

`SET TRACEOFF=ALL`
`SET TRACEOFF = component [/ [level] [/ [destination] ] ]`

where:

ALL

Deactivates all traces for all components.

component

Deactivates traces for the named component. If omitted, the command applies to all components.

level

Identifies the trace level to be deactivated. If omitted, all trace levels are deactivated.

ddname

Turns off the trace levels associated with *ddname*. Valid values for *ddname* are FSTRACE or CLIENT.

Trace Components and Levels

This section describes each trace component and, where available, each level.

Relational Data Adapter Traces

The following components are available for the DB2, SQL/DS, Oracle, Teradata, and IDMS/SQL Data Adapters:

Relational Component	Description
SQLDI	SQL physical layer (formerly FSTRACE)
SQLAGGR	Optimization information (formerly FSTRACE3)
STMTRACE	SQL statements (formerly FSTRACE4)
SQLCALL	Commands and data exchange between the physical and the logical layers of the data adapter.

Adabas Data Adapter Traces

The ADBSIN component displays the ADABAS communications buffer generated by the data adapter for each call made to ADABAS. This feature is useful for debugging purposes and performance monitoring. It enables you and the database administrator to track ADABAS resource use. The ADABAS Format, Search, and Value buffers are also displayed when a specific ADABAS call requires one or more of them (refer to your Software AG documentation for more information on buffers).

The component name for the Adabas Data Adapter is ADBSIN.

The following trace levels are available:

ADBSIN Trace Level	Description
1	Shows the flow of control during run time (formerly FSTRACE).
2	Shows the flow of control during the setup stage (formerly FSTRACE5).
3	Very detailed trace that shows the run time physical calls. It allows you to see exactly what is being passed in the ADABAS buffers. For example, if the Fetch feature is being used, a P displays under the COP1 column if Prefetch is active, or an M appears in that column if Multifetch is active. The COP1 field will be blank if the Fetch feature has been disabled (formerly FSTRACE).
4	Summary trace showing ADABAS statistical information (formerly FSTRACE4). It displays the type of call issued (for example, RL or FIND), the key field used in the search buffer (if applicable), and information about the Fetch feature. This trace is recommended because it provides useful and easy-to-read information such as the:

- • Number of I/O operations.
- • Number of commands issued.
- • Amount of CPU time in seconds.

All trace information is returned after the ADABAS CLOSE call is issued. To generate this information, you must specify OPEN=YES in the Access File.

CA-IDMS Data Adapter Traces

The component name for the CA-IDMS Data Adapter is IDMS

The following trace levels are available for the CA-IDMS Data Adapter:

IDMS Trace Level	Description
1	Shows each call to IDMS and its result (formerly FSTRACE).
2	Shows each call to IDMS and, additionally, all control blocks and parameters passed to and from IDMS (formerly FSTRACEP).

IMS/DB Data Adapter Traces

The component name for the IMS/DB Data Adapter is IMS.

The following trace levels are available:

IMS Trace Level	Description
1	Shows runtime set up information.
2	Shows runtime flow of control.
3	Shows physical calls to IMS and PSB information.
4	Shows SSA arguments.

MODEL 204 Data Adapter Traces

The component name for the MODEL 204 Data Adapter is M204.

Other Data Adapter Traces

The tracing facility for the following data adapters has not changed for FOCUS 7.2. These trace facilities are still activated by allocating the appropriate ddname, as described in the documentation for the specific data adapter:

• Nomad.

• Millennium.

• Supra/Total.

• CA-Datacom.

Examples

The following command turns on traces for all levels of the ADBSIN component and uses their current ddnames. If no ddname has been specified, it uses the default ddnames:

```
SET TRACEON = ADBSIN
```

The following example turns on the level 4 trace and associates it with the ddname FSTRACE:

```
SET TRACEON = ADBSIN/4/FSTRACE
```

The following command turns off trace level 4 for the ADABAS Data Adapter:

```
SET TRACEOFF = ADBSIN/4
```

The following command turns off all traces for the ADABAS Data Adapter:

```
SET TRACEOFF = ADBSIN
```

The following command turns off all traces allocated to ddname FSTRACE for all components:

```
SET TRACEOFF = //FSTRACE
```

Querying Traces

The trace query commands tell you which trace levels are either activated or deactivated for *every* component. Be aware that these commands may show a voluminous amount of information that does not pertain to the components in which you are interested.

To list all of the trace level/component combinations currently active, issue the following command:

```
SET TRACEON = ?
```

To list all of the trace level/component combinations not currently active, issue the following command:

```
SET TRACEOFF = ?
```

Example: Querying Traces

The following command queries the active traces. None are activated:

```
>  > set traceon = ?
Name    Level Description                    Set  Comp.ID>  >
```

The next command activates trace level 1 for the ADABAS Data Adapter (component name ADBSIN):

```
>  > set traceon = adbsin/1
```

Now, issuing the query command generates a list of all trace levels and ddnames for the ADBSIN component:

```
> > set traceon = ?
Name    Level  Description                          Set  Comp.ID
ADBSIN    1    ADBSINX Run Time Calls                Y   CO
```

Allocating FSTRACE

You can allocate FSTRACE during your session or in batch. You can store the results in a file or sequential data set.

Tip: The trace facilities are intended for use in query optimization and problem debugging. Application programs should not be written to depend on the format or content of any trace, as they may change in later releases.

How to Allocate FSTRACE Online

You can allocate FSTRACE to an MVS sequential data set or CMS file. To capture trace data in a sequential file, issue the appropriate command from the command level. For example:

```
{MVS|TSO} ALLOC F(FSTRACE) DA('userid.FSTRACE') SHR REU
```

or

```
DYNAM ALLOC DD FSTRACE DATASET userid.FSTRACE SHR REUSE
```

or:

```
CMS FILEDEF FSTRACE DISK FSTRACE DATA A
```

Note: DCB attributes are LRECL=80 and RECFM=F.

To view the trace information, use the system editor or the FOCUS TED editor.

How to Allocate FSTRACE in Batch

You can write trace results to SYSOUT. BLKSIZE information is optional, but should be compatible with other FSTRACE formats. For example, to allocate ddname FSTRACE:

```
//FSTRACE   DD   SYSOUT=*,DCB=(LRECL=80,BLKSIZE=80,RECFM=F)
```

You can also write trace results to an MVS sequential data set. First, allocate the FSTRACE data set in a prior batch step (as shown) or in ISPF:

```
//ALLOC     EXEC PGM=IEFBR14
//FSTRACE   DD   DISP=(,CATLG),DSN=userid.FSTRACE,
//          UNIT=SYSDA,VOL=SER=USERM1,SPACE=(TRK,(5,5)),
//          DCB=(LRECL=80,BLKSIZE=80,RECFM=F)
                        .
                        .
                .
```

Then, allocate the trace data set with DISP=MOD in the batch FOCUS JCL:

```
                        .
                        .
                        .
//FOCBATCH EXEC PGM=FOCUS
//FSTRACE   DD   DISP=(MOD,KEEP,KEEP),DSN=userid.FSTRACE
```

How to Free Trace Allocations

To disable a data adapter trace, clear the associated allocation

```
{MVS|TSO} FREE F(FSTRACE)
```

or

```
DYNAM FREE FILE FSTRACE
```

or

```
CMS FILEDEF FSTRACE CLEAR
```